

AMENDMENTS TO THE CLAIMS

1. (currently amended) A ~~[[P]]~~process for generating an intermediate laminated product in an aluminium alloy of the Al-Zn-Mg type, ~~including the following steps~~ said process comprising:

a) by semi-continuous casting a plate is generated containing (in percentages per unit mass)

Mg 0.5 – 2.0 Mn < 1.0 Zn 3.0 – 9.0 Si < 0.50
 Fe < 0.50 Cu < 0.50 Ti < 0.15 Zr < 0.20
 Cr < 0.50

~~the remainder of the~~ aluminium with its inevitable impurities, in which $Zn/Mg > 1.7$;

b) said plate is subjected to homogenisation or reheating to a temperature T_1 , selected so that $500^{\circ}\text{C} \leq T_1 \leq (T_s - 20^{\circ}\text{C})$, where T_s is the alloy burning temperature,

c) an initial hot-rolling step is carried out including one or more roll runs on a hot rolling mill, the input temperature T_2 being selected such that $(T_1 - 60^{\circ}\text{C}) \leq T_2 \leq (T_1 - 5^{\circ}\text{C})$, and the rolling process being conducted in such a way that the output temperature T_3 is such that $(T_1 - 150^{\circ}\text{C}) \leq T_3 \leq (T_1 - 30^{\circ}\text{C})$ and $T_3 \leq T_2$;

d) the strip emerging from said initial hot-rolling step is cooled to a temperature T_4 ;

e) a second step of hot-rolling said strip is carried out, the input temperature T_5 being selected such that $T_5 \leq T_4$ and $200^{\circ}\text{C} \leq T_5 \leq 300^{\circ}\text{C}$, and the rolling process being conducted in such a way that the coiling temperature T_6 is such that $(T_5 - 150^{\circ}\text{C}) \leq T_6 \leq (T_5 - 20^{\circ}\text{C})$.

2. (currently amended) A ~~[[P]]~~process according to claim 1, ~~characterised in that wherein~~ the zinc content of the alloy is ~~between from~~ 4.0 and to 6.0%, the Mg content is ~~between from~~ 0.7 and to 1.5%, and the Mn content is less than 0.60%.

3. (currently amended) A ~~[[P]]~~process according to claim 2, ~~characterised in that~~ wherein Cu < 0.25%.
4. (currently amended) A ~~[[P]]~~process according to claim 2, ~~characterised in that~~ wherein the alloy is ~~chosen~~ selected from the group ~~formed by the~~ consisting of alloys 7020, 7108, 7003, 7004, 7005, 7008, 7011, and 7022.
5. (currently amended) A ~~[[P]]~~process according to ~~any one of claim~~ ~~[[s]] 1 to 3,~~ ~~characterised in that~~ wherein the alloy additionally contains one or more elements ~~chosen~~ selected from the group ~~formed by~~ consisting of Sc, Y, La, Dy, Ho, Er, Tm, Lu, Hf, and Yb with a concentration not exceeding the following values:
- Sc < 0.50% ~~and preferably~~ < 0.20%,
- Y < 0.34% ~~and preferably~~ < 0.17%,
- La, Dy, Ho, Er, Tm, Lu < 0.10% each ~~and preferably~~ < 0.05% each,
- Hf < 1.20% ~~and preferably~~ < 0.50%,
- Yb < 0.50% ~~and preferably~~ < 0.25%.
6. (currently amended) A ~~[[P]]~~process according to ~~any one of claim~~ ~~[[s]] 1 to 5,~~ ~~characterised in that~~ wherein said intermediate laminated product has a thickness ~~between~~ from 3 mm ~~and to~~ 12 mm.
7. (currently amended) A ~~[[P]]~~process according to ~~any one of claim~~ ~~[[s]] 1 to 6,~~ ~~characterised in that~~ wherein said intermediate laminated product is subjected to cold ~~working~~ from 1% ~~and to~~ 9%, and/or to an additional heat treatment including one or more points at temperatures ~~between~~ from 80°C ~~and to~~ 250°C, said additional heat treatment being able to occur before, after or during said cold working.
8. (currently amended) A ~~[[P]]~~process according to ~~any one of claim~~ ~~[[s]] 1 to 7,~~ ~~characterised in that~~ wherein the temperature T_3 is such that $(T_1 - 100^\circ\text{C}) \leq T_3 \leq (T_1 - 30^\circ\text{C})$ and/or ~~in that~~ the temperature T_2 is such that $(T_1 - 30^\circ\text{C}) \leq T_2 \leq (T_1 - 5^\circ\text{C})$.

9. (currently amended) A ~~[[P]]~~process according to ~~any one of claim~~[[s]] 1 ~~to 8~~, ~~characterised in that~~ wherein the temperature T_3 is greater than the a solvus temperature of the alloy.
10. (currently amended) A ~~[[P]]~~process according to ~~any one of claim~~[[s]] 1 ~~to 9~~, ~~characterised in that~~ the alloy is a 7108 alloy and the temperatures T_1 to T_6 are respectively $T_1 = 550^\circ\text{C}$, $T_2 = 540^\circ\text{C}$, $T_3 = 490^\circ\text{C}$, $T_4 = 270^\circ\text{C}$, $T_5 = 270^\circ\text{C}$, $T_6 = 150^\circ\text{C}$.
11. (currently amended) A ~~[[P]]~~product which can be obtained via ~~the a~~ process according to ~~any one of claim~~[[s]] 1 ~~to 10~~, ~~characterised in that its~~ wherein the yield strength $R_{p0.2}$ of said product is at least 250 Mpa, its the fracture strength R_m of said product is at least 280 MPa, and its the elongation at fracture of said product is at least 8%.
12. (currently amended) A ~~[[P]]~~product according to claim 11, ~~characterised in that its~~ wherein the yield strength $R_{p0.2}$ is at least 290 MPa and ~~that its the~~ fracture strength R_m is at least 330 MPa.
13. (currently amended) A ~~[[P]]~~product according to ~~any one of claim~~[[s]] 11 ~~or 12~~, ~~characterised in that~~ wherein the zinc content thereof is ~~between from~~ 4.0 and to 6.0%, its the Mg content is between 0.7 and 1.5%, and its the Mn content is less than 0.60% (~~and preferably less than 0.25%~~).
14. (currently amended) A ~~[[P]]~~product according to claim 13, ~~characterised in that its~~ wherein the copper content thereof is less than 0.25%.
15. (currently amended) A ~~[[P]]~~product according to ~~any one of claim~~[[s]] 13 ~~or 14~~, ~~characterised in that~~ wherein the width of the precipitation-free zones at the grain boundaries thereof is more than 100 nm, ~~preferably between 100 nm and 150 nm, and even more preferably from 120 nm to 140 nm.~~
16. (currently amended) A ~~[[P]]~~product according to claim 15, ~~characterised in that that~~ wherein MgZn_2 type precipitations at the grain boundaries have an average size of more than 150 nm, ~~and preferably between 200 nm and 400 nm.~~

17. (currently amended) A ~~[[P]]~~product according to ~~any one of claim~~[[s]] 11 to 16, characterised in that it wherein said product has a fibrous structure with grains exhibiting in the short-transverse direction a thickness of less than 30 μm , ~~preferably less than 15 μm , and even more preferably less than 10 μm .~~
18. (currently amended) A ~~[[P]]~~product according to claim 17, characterised in that it wherein said product has a fibrous structure characterised by having a thickness/length of grains ratio of more than 60, ~~and preferably more than 100.~~
19. (currently amended) A ~~use of a laminated product according to any one of claims 11 to 18 to manufacture~~ welded construction[[s]] comprising a product of claim 11.
20. (currently amended) A ~~Use of a laminated product according to any one of claims 11 to 18 to build road or rail tanker~~[[s]] comprising a product of claim 11.
21. (currently amended) An ~~Use of a laminated product according to any one of claims 11 to 18 to build industrial vehicle~~[[s]] comprising a product according to claim 11.
22. (currently amended) A method for ~~Use of a laminated product according to any one of claims 11 to 18 to building~~ equipment for storage, transport or handling of granulous products, such as buckets, tanks or conveyors comprising using a product of claim 11 that is laminated.
23. (currently amended) A ~~Use of a laminated product according to any one of claims 11 to 18 to manufacture~~ motor vehicle part[[s]] comprising a product according to claim 11.
24. (currently amended) ~~Use of a laminated product according to any one of claims 11 to 18 as a~~ A structural component in aeronautical construction comprising a product according to claim 11.
25. (currently amended) ~~Use according to claim 24, wherein said structural component is a~~ A fuselage facing sheet comprising a structural component according to claim 24.

26. (currently amended) ~~Use according to any one of claims 19 to 25, wherein~~ A method for making a welded construction according to claim 19 comprising assembling at least two of said structural components ~~are assembled~~ by welding.

27. (currently amended) A ~~[[W]]welded construction made with~~ comprising at least two products according to ~~any one of claim[[s]] 11 to 18, characterised in that its~~ having a yield strength $R_{p0.2}$ in ~~the~~ a welded joint between two of said products is of at least 200 MPa.

28. (currently amended) A ~~[[W]]welded construction according to claim 27, wherein the~~ yield strength $R_{p0.2}$ in the welded joint between two of said products is at least 220 MPa.

29. (currently amended) A ~~[[W]]welded construction made with~~ comprising at least two products according to ~~any one of claim[[s]] 11 to 18, characterised in that its~~ having a fracture strength R_m in ~~the~~ a welded joint between two of said products is of at least 250 MPa.

30. (currently amended) A ~~[[W]]welded construction according to claim 29, wherein the~~ fracture strength R_m in the welded joint between two of said products is at least 300 MPa.

31. (currently amended) A ~~[[W]]welded construction according to any one of claim[[s]] 27 to 30, wherein the~~ having a hardness in ~~the~~ a heat-affected zone is of greater than or equal to 100 HV, ~~preferably greater than or equal to 110 HV, and even more preferably greater than or equal to 115 HV.~~

32. (currently amended) A ~~[[W]]welded construction according to claim 31, wherein the~~ hardness in the heat-affected zone is at least as great as the hardness of those of ~~the~~ a base sheet that has the lowest level of hardness.